

## CLAIMS

1. An optical fibre core having a reflective coating along a first part of its length such that electromagnetic radiation may travel along the first part  
5 of the optical fibre by means of reflection, and further having a cladding along a second part of its length, the cladding having a refractive index suitable for permitting the electromagnetic radiation to travel along the second part of the optical fibre.
2. An optical fibre core as claimed in claim 1 wherein at least part of the  
10 outside surface of the cladding is coated in a reflective coating.
3. An optical fibre core as claimed in claim 1 or claim 2 wherein the cladding is tapered along part of its length, the thin part of the taper being adjacent the first, coated part of the fibre.
4. An optical fibre core as claimed in claim 3 wherein the tapered portion of  
15 the cladding has a reflective coating on the outside surface of the cladding.
5. An optical fibre core as claimed in claim 4 wherein the reflective coating is thickest at the thin part of the taper.
6. An optical fibre core as claimed in any preceding claim wherein the first,  
20 coated part of the fibre core further comprises a layer of cladding between the fibre core and the reflective coating, said layer of cladding being substantially thinner than the cladding of the second part of the optical fibre core, said layer of cladding being sufficiently thin to permit electromagnetic radiation to travel along the first part of the optical fibre  
25 core by means of reflection.
7. An optical fibre core as claimed in any preceding claim wherein the first part of the optical fibre has a core of a different cross-section to the second part of the optical fibre.

- 10 -

8. An optical fibre core as claimed in any preceding claim wherein the first part of the optical fibre has a core of a different material to the second part of the optical fibre.
- 5 9. A fibre optic coupling arrangement for coupling a light pipe to a clad optical fibre, the coupling arrangement comprising a light pipe comprising an optical fibre core having a reflective coating and a clad optical fibre comprising an optical fibre core with cladding surrounding the core, the optical fibre core of the light pipe being optically joined to the optical fibre core of the clad optical fibre such that electromagnetic radiation is able to travel from the light pipe to the clad optical fibre, wherein tapered cladding is provided in the region where the light pipe is optically joined to the clad optical fibre.
- 10 10. A fibre optic coupling arrangement as claimed in claim 9 wherein the tapered cladding is at least partially coated with a reflective coating.
- 15 11. An array of optical fibres, each optical fibre comprising an optical fibre core having a reflective coating along a first part of its length such that electromagnetic radiation may travel along the first part of the optical fibre by means of reflection, and further having a cladding along a second part of its length, the cladding having a refractive index suitable for permitting the electromagnetic radiation to travel along the second part of the optical fibre.
- 20 12. An array of optical fibres as claimed in claim 11 wherein the clad part of each of the optical fibres terminates in an electromagnetic radiation detection device.